

ABSTRACT

[0061] Transparent wavelength division multiplexing systems and methods include an array of wavelength converters receiving  $n$  input signals and shifting the wavelength of each input signal by a different amount so that  $n$  different wavelengths result. Each of the wavelength converters shifts the wavelength of the input signal by a known amount. The resulting signals may be combined and transmitted over a fiber. A passive (or active) wavelength splitter may be used to recover the signals from the fiber, and deliver the signals directly to one or more network devices. Receivers in the receiving router or switch generally are not wavelength-specific, so the  $n$  optical signals need not be shifted back to a common wavelength prior to the router or switch.

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